NEPTUNE
TECHNOLOGY GROUP

Neptune® 360™
File Mapper Layout
Version 1.5

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Chapter 1: General Information

Neptune® 360™ supports the import and utilization of "flat" files for the purposes of transferring data between a utility's Customer Information System (CIS) and Neptune 360. These flat files are not required to have a hierarchical record structure, are plain text-based, and use delimited variable-length fields rather than fixed-length fields and records. Support for flat files allows implementers to begin inter-operating with Neptune 360 more rapidly. In many cases, a CIS may be able to support a flat transfer file with little to no intervention from the CIS vendor.

Glossary

Table 1 contains terms referenced throughout this document.

Table 1: Glossary Terms

Term	Definition
Customer Information System (CIS)	The software used by a utility to conduct billing and revenue collection processes.
Delimited	The boundaries between field values in each record / row are indicated by a specific text character.
Import File	A file created by and transferred out of the CIS to be imported into Neptune 360.
Export File	A file created by Neptune 360 to be imported into CIS.
Meter Configuration	A combination of a meter body and register which can also include an integrated or stand-alone radio (MIU).
Premises	The physical location at which a utility service is provided and measured.

References

The following is a list of references used in this guide.

- RFC 2119 — "Key words for use in RFCs to Indicate Requirement Levels," https://tools.ietf.org/html/rfc2119.
- RFC 5234 — "Augmented BNF for Syntax Specifications: ABNF," https://tools.ietf.org/html/rfc5234.

Character Types

For both the import and export file, field definitions include a character type specifying the expected data within that field. Character types are shown in a different font throughout this document (DIGIT for example,) and when used they are to be interpreted as described below and as adapted from RFC 5234. Character types do not directly reflect nor prescribe the database types used to store field values.

- ALPHA – ASCII letters A-Z or a-z (%x41-5A or %x61-7A).
- CRLF – Standard carriage return linefeed characters (%x0D and %x0A).
- DIGIT – Numbers 0 - 9 (%30x-39).
- DQUOTE – Double quote " (%x22).
- SP – Space character (%x20).
- ALPHANUM – Visible characters (%x21-7E) and spaces (%x20) are allowed.
- VTEXT – Visible characters (%x21-7E), accented ASCII letters (%80-A5), and spaces (SP) are allowed.
- DECIMAL – Only numbers (DIGIT) and the punctuation characters en dash (-) or period (.) are allowed (%2D-2E).
- BOOL – Only the uppercase letters Y or N are allowed (%x59 or %x4E).
- EMAIL – Visible characters (%x21-7E) and punctuation (PUNCT) are allowed.
- PUNCT – Only these characters are allowed: at sign (@), period (.), exclamation (!), number sign (#), dollar sign ($), percent (%), ampersand (&), single quote ('), asterisk (*), plus sign (+), en dash (-), forward slash (/), equal sign (=), question mark (?), caret (^), underline (_), accent mark (`), braces ({ }), and tilde (~).
- SIZE – Only numbers (DECIMAL) , the letter x, spaces (SP), and the special characters forward slash (/), en dash (-), or *DQUOTE* are allowed.
- ERRREAD – Only numbers (DIGIT), special characters colon (:) or question mark (?), or uppercase letters M or U are allowed.
- DELIM – Vertical bar or pipe character (|) (%x7C).

Chapter 2: Import File

The import file contains records and field data from a utility's Customer Information System (CIS) and is imported into Neptune® 360™. The imported data is used in billing for service usage, as well as enabling features within Neptune 360 that support meter reading and utility customer service activities.

Each implementation requires an initial setup and mapping, which Neptune personnel perform. This is a manual process to map the fields / columns of data and the lists of values in the utility's file to the Neptune 360 internally-supported fields and values. Then you can generate an import-capable file without having to specifically export to a structured file format. After successful completion of the mapping process, use the resulting configuration for all subsequent imports from the CIS into Neptune 360.

Warning! It is important that the initial file the utility provides for this mapping process is as comprehensive as possible. If a subsequent import file contains a new value or field, the utility must contact Neptune personnel to perform additional mapping to import successfully.

File Types / Extensions

The import file is a plain text-based file. Each file consists of a Header Row followed by one or more records. Each record occupies a row or line in the file. There cannot be a hierarchy of records. Each record consists of multiple variable-length fields and fields that are demarcated by a text delimiter character. The same delimiter character is used throughout the import file.

An import file does not require a specific, pre-defined file extension. However, Neptune 360 requires a flat, delimited text file. File extensions such as .txt, .csv, or .imp can be used. Do not use an extension commonly associated with either a non-text data type such as .jpg, .exe or a formatted text-based file extension such as .rtf or .pdf. Such extensions can cause the file to fail validation.

There are no specific naming requirements or conventions for an import file. However, make the file name descriptive, readily identifiable for import into Neptune 360, and differentiate one file from other generated files.

Header Row

A utility's import file contains a Header Row. The Header Row contains all the field names (column names) included in the file's import records. There can be only one Header Row in a file, and it is the first row / record in the file. The Header Row contains the plain text names of the fields present in the import records, each separated by a delimiter character. The Header Row cannot contain duplicate field names. Each field name must be between 1 and 26 ALPHANUM characters.

Import Record

The Import Record is used to transfer account-related data from the CIS into Neptune 360. An import file can have any quantity of Import Records. However, there is at least one Import Record per file. Each data field within an Import Record is separated by a delimiter character and each Import Record in the file ends with CRLF. Each Import Record contains the same number of fields as indicated in the header row.

Record and Field Formatting

This list provides information on formatting a field.

- Each row / line for a specific record type contains the same number of fields.
- Every field in a record except the final field ends with a delimiter character, even if the field is not populated with data. The final field in a record cannot end with a delimiter character.
- When a field is populated, data cannot include preceding or trailing space characters —the system may trim white space.
- Field data containing commas, spaces, double quotes, or other escapable characters can be enclosed within two DQUOTE characters (example: "Smith, John".)
- Every record is terminated with a CRLF. The CRLF for the final record in the file also serves as the end of file indicator. Note that CRLF characters are non-visible and non-printing and are represented as letters or symbols throughout this document for illustrative purposes only.

Data Formatting Examples

The following example has three records and each record has four fields. Each field is separated from the next by a delimiter character—in these examples, the vertical bar or pipe | character—and there is no delimiter character between the last field and record-terminating CRLF.

record1field1|field2|field3|field4CRLF

record2field1|field2|field3|field4CRLF

record3field1|field2|field3|field4CRLF

In this example, **field2** data contains a comma, a space, and is enclosed within two *DQUOTE* characters.

```
record4field1|"field, 2"|field3|field4CRLF
```

In this example, the second and third fields are optional and have not been specified. They must have their own delimiter character to demarcate the fields and to ensure the field count is correct for that record.

```
record5field1|||field4CRLF
```

In this example, the record contains spaces at the end of **field1** and at the beginning of **field3**. Neither condition is prohibited, but both are discouraged. These extraneous spaces can cause validation and data integrity issues within Neptune 360.

```
record6field1 |field2| field3|field4CRLF
```

Field Use Requirements

Each field in the import file is either required, optional, or conditional.

- A REQUIRED field is populated with data that complies with the corresponding field specifications.
- An OPTIONAL field can either be populated with data or left empty. However, when an optional field is populated with data, the data must comply with the corresponding field specifications.
- A CONDITIONAL field is REQUIRED when certain criteria are met, as specified, and OPTIONAL otherwise.

REQUIRED Fields

Neptune 360 requires the fields in this section to have an equivalent field and data in the import file. Requirements for the field's use— including any recognized values— are specified along with the character type and minimum and maximum allowed character counts. Example data is provided for reference and each example includes a reference delimiter character. These fields are listed in alphabetical order.

Account Number

Account Number identifies the account number associated with the premises. Account Number contains at least 1 and up to 20 ALPHANUM characters.

Examples:

- DLTH0987654321|
- abcde12345fghjk67890|
- 123-0000293847

Each Account Number is unique within the CIS.

Account Status

Account Status indicates the current billing status of the customer account. Account Status contains at least one character and each utility value must be mapped to one of the four Neptune 360 Account Status types shown in the following table. Add your values in the third column.

Table 2: Examples of Account Status Target Values

Target Values	Description	Utility Values (For Utility Use)
Active	Customer account is active in the CIS.	–
Active Warn on Zero Use	Customer account is active in the CIS; indicates if there is no service usage.	–
Inactive	Customer Account is inactive in the CIS.	–
Inactive Warn on Use	Customer account is inactive in the CIS; indicates if there is service usage.	–

Company

Company identifies the entity administering the locations, offices, and personnel responsible for meter reading and billing. Company contains at least one and up to four ALPHANUM characters.

Examples:

- NEPT|
- nep|
- 00A1|

Company is most often the name or an abbreviated name of the utility. In Neptune 360, a Route ID is the combination of the Company, Office, Cycle, and Route fields, joined by dash characters. Each import file can have only one Company value.

Cycle

Cycle Identifies a grouping of routes. Cycle contains at least one and up to four ALPHANUM characters.

Examples:

- Mwk1|
- 0 02|
- A|

Cycle is often a designator for the period in which the accounts within a route should be billed. In Neptune 360, a Route ID is the combination of the Company, Office, Cycle, and Route fields, joined by dash characters.

Decimals

Decimals indicate the number of digits placed to the right of the decimal point on a meter reading. Decimals are specified as a one DIGIT character with values between zero and eight, inclusive. Decimals can contain two DIGIT characters with values between 00 and 08, inclusive.

Examples:

- 0|
- 01|

Meter Number

Meter Number identifies the physical meter body installed at a premises. Meter Number contains at least 1 and up to 20 ALPHANUM characters.

Examples:

- W1AH8201|
- 09876543211234567890|

Meter Number is the meter body serial number or other identifier designated by the meter manufacturer and should be unique within the CIS. The meter number can have one or more leading zeros.

Number of Dials

Number of Dials indicates the number of digits expected for a meter reading. Number of Dials can contain a one DIGIT character with values between one and eight, inclusive, or a two DIGIT character with values between 01 and 08, inclusive.

Examples:

- 8|
- 06|

Use Number of Dials to audit the entered reading and to control the reading field size displayed on the handheld device. Number of Dials cannot have a value of 0 or 00.

Office

Office identifies an individual location or working group of personnel within the Company. Office contains at least one and up to four ALPHANUM characters.

Examples:

- Off1|
- 1234|
- Of 1|

In Neptune 360, a Route ID is the combination of the Company, Office, Cycle, and Route fields, joined by dash characters.

Premises Key

Premises Key provides a unique identifier for a physical premises or service location. Premises Key contains at least 1 and up to 20 ALPHANUM characters.

Examples:

- 001-1234567890|
- A270C75BB6398AE02D14|
- "102 /9876543"|

If the CIS cannot generate an alternate unique key, each Premises Key can be the same as Account Number. Premises Key is unique within the CIS and remains the same for any records corresponding with the same premises or location.

Read Sequence

Read Sequence is used to convey the order in which meters are expected to be read. Read Sequence contains at least one and up to six DIGIT characters.

Examples:

- 13|
- 000971|

Each Read Sequence value within a specific route is unique. Read Sequence can have leading zeros and cannot contain spaces.

Route

Route identifies the route associated with the cycle for a premises or account. A Route contains at least 1 and up to 10 ALPHANUM characters.

Examples:

- DuluthGA01|
- DULUTH1|
- 22|

In Neptune 360, a Route ID is the combination of the Company, Office, Cycle, and Route fields, joined by dash characters.

CONDITIONAL Fields

The fields in this section are REQUIRED only if using a Trimble® handheld device, or if you intend to read ERT endpoints. For Trimble devices, the devices are identified in Neptune 360 by the HH Support setting. When set to "Yes" the fields are mandatory. Otherwise, the fields are OPTIONAL.

Meter Type

Meter Type is used in conjunction with Read Type to designate a grouping of meters that are expected to be read using the same method. Meter Type contains at least one and up to four ALPHANUM characters.

Examples:

- 0001 |
- R900 |
- MAN |

Read Type

Read Type describes the type of read or measurement expected for an individual register. Used in conjunction with Meter Type. Read Type is a least one and up to four ALPHANUM characters.

Examples:

- WAT |
- HIGH |
- LOW |

OPTIONAL Fields

The fields in this section are optional for import into Neptune 360. They are listed in alphabetical order. The source import file can contain equivalent fields and data.

Account Holder City

Account Holder City indicates the city associated with the account holder address, and contains at least 1 and up to 26 VTEXT characters.

Examples:

- Duluth |
- La Côte-de-Gaspé |
- Española |

Account Holder City can be the same as Premises City.

Account Holder Delivery Address

Account Holder Delivery Address indicates the address number and street name associated with the account holder. The address contains at least 1 and up to 64 VTEXT characters.

Examples:

- 3100 Breckinridge Blvd Bldg 2100 |
- 832 Avenue Sévigny |
- "1234-A NW Main St S Apt 1201" |

Account Holder Delivery Address cannot contain the city, state / province, or zip / postal code. Account Holder Delivery Address conforms with the USPS or Canada Post guidelines for Delivery Address Line or Civic Address line, respectively, which can include other address information such as pre-direction, unit, or post direction. Account Holder Delivery Address can be the same as Premises Delivery Address

Account Holder Email

Account Holder Email indicates an email address associated with the account holder. Account Holder Email can be specified and contain up to 50 EMAIL characters.

Examples:

- marketing@neptunetg.com|
- "sales@neptunetg.com"|

Account Holder Email can be the same as Premises Email.

Account Holder Name

Account Holder Name indicates the full name or names of the account holder and contains at least 1 and up to 26 VTEXT characters.

Examples:

- Johnny Appleseed |
- Helene Francois |
- "Appleseed, Johnny & Jane" |
- Smith, Donna / Jones, Dave |

Account Holder Name can contain embedded commas, forward slashes, and ampersand characters, especially if representing multiple persons. Account Holder Name can be the same as Customer Name.

Account Holder Phone

Account Holder Phone indicates the phone number associated with the account holder. Account Holder Phone can be specified and contain up to 10 DIGIT characters.

Examples:

- 5552034032|
- 8006338754|

Account Holder Phone data is numeric and excludes dashes, spaces, plus signs or parentheses. Account Holder Phone can be the same as the Premises Phone.

Account Holder State

Account Holder State indicates the state or province associated with the account holder delivery address. Account Holder State contains two ALPHA characters.

Examples:

- GA |
- ON |

Account Holder State is expressed as a standardized two-letter abbreviation and is capitalized. Account Holder State can be the same as Premises State.

Account Holder Zip

Account Holder Zip indicates the zip or postal code associated with the account holder delivery address. Account Holder Zip contains at least 5 and up to 10 characters and is formatted as indicated below.

Examples:

- 30096 |
- 30096–4985 |
- L5N 5M9 |

U.S. zip codes can contain five DIGIT characters, or five DIGIT characters followed by a dash and an additional four DIGIT characters. U.S. zip codes cannot include spaces. Canadian postal codes have seven total characters and must be in ALPHA DIGIT ALPHA SP DIGIT ALPHA DIGIT format. The ALPHA characters are capitalized. Account Holder Zip can be the same as Premises Zip.

Customer Name

Customer Name indicates the full name or names of the customers at the address where the meter / service is located. Customer Name contains at least 1 and up to 26 VTEXT characters.

Examples:

- Johnny Appleseed |
- Helene Francois |
- "Appleseed, Johnny & Jane" |
- Smith, Donna / Jones, Dave |

Customer Name can be the same as Account Holder Name, and can contain embedded commas, spaces, forward slashes, and ampersand characters, especially if representing multiple persons.

High Limit

High Limit defines the highest reading expected to be captured for the given register. High Limit can be specified; if present, it contains at least 1 and up to 10 **DIGIT** characters.

Examples:

- 2598| (Number of Dials = 4)
- 002598| (Number of Dials = 6)

The number of characters used for High Limit should match the value specified for the corresponding Number of Dials. High Limit can contain leading zeros. If a high reading limit is not prescribed by the CIS, High Limit is left empty.

IsSensor

IsSensor denotes whether the device associated with the MIU ID is a sensor device such as a pressure or leak monitor rather than a meter or register. If MIU ID is specified, IsSensor is specified. If present, it is a one BOOL character and has a value of either
Y or N.

Examples:

- Y|
- N|

If MIU ID is not specified, IsSensor is empty.

Low Limit

Low Limit defines the lowest reading expected to be captured for the given register. Register Low Limit can be specified; if present, it contains at least 1 and up to 10 DIGIT characters.

Examples:

- 2402| (Number of Dials = 4)
- 002402| (Number of Dials = 6)

The number of characters used for Low Limit should match the value specified for the corresponding Number of Dials. Low Limit can contain leading zeros. The value for Low Limit is often the same as Previous Read. If a low reading limit is not prescribed by the CIS, Low Limit should be empty.

Meter Custom 1

Meter Custom 1contains utility-defined information related to the meter. If specified, Meter Custom 1 can contain up to 26 VTEXT characters.

Examples:

- Located under stairs|
- ID: 123456789|

Meter Custom 2

Meter Custom 2 allows utility-defined information related to the meter to be provided. If specified, Meter Cusom 2 can contain up to 26 VTEXT characters.

Examples:

- Located under stairs|
- ID: 123456789|

Meter Install Date

Meter Install Date represents the actual date the meter was installed. If specified, Meter Intall Date contains 8 DIGIT characters in YYYYMMDD format.

- 20211224|

Meter Latitude

Meter Latitude designates the signed decimal degrees latitude (y-coordinate) corresponding with the meter location. Meter Latitude can be specified. If present, Meter Latitude contains at least 1 and up to 12 DECIMAL characters.

Examples:

- 32|
- 33.963832129|

Important! All North American latitudes are positive and must not be preceded by a dash. You can use the latitude of the premises to represent Meter Latitude. Meter Latitude should conform to Web Mercator.

Meter Longitude

Meter Longitude designates the signed decimal degrees longitude (x-coordinate) corresponding with the meter location. Meter Longitude can be specified; if present, Meter Longitude contains at least 1 and up to 12 DECIMAL characters.

Examples:

- –84|
- –84.14464|

Important! All North American longitudes are negative and are preceded by a dash. You can use the longitude of the premises to represent Meter Longitude. Meter Longitude should conform to Web Mercator.

Meter Manufacturer

Meter Manufacturer names the manufacturer of the meter installed at the premises. Meter Manufacturer contains at least one character and each utility value must be mapped to one of the following Neptune 360 Meter Manufacturer values. Add your values in the second column.

Table 3: Examples of Meter Manufacturer Target Values

Target Values	Utility Values (For Utility Use)
Neptune	–
Sensus	–
MasterMeter	–
Itron	–
Hersey / Mueller	–
Badger	–
Elster / Amco	–
Metron-Farnier	–
Other	–

Meter Size

Meter Size denotes the size of the meter installed at the premises. Meter size contains at least one character and each utility value must be mapped to one of the following Neptune 360 Meter Size values. Add your values in the second column.

Table 4: Examples of Meter Size Target Values

Target Values	Utility Values (For Utility Use)
5/8"	–
3/4"	–
1"	–
1 -1/2"	–
2"	–
3"	–
4"	–
6"	–
8"	–
10"	–
12"	–
16"	–
20"	–

If Meter Size is not provided, Neptune 360 assumes a default value of 5/8".

Meter Uninstall Date

Meter Uninstall Date represents the date the meter was removed from service. If specified, Meter Uninstall Date contains 8 DIGIT characters in YYYYMMDD format.

Examples:

- 20211224|

MIU ID

Contains the serial number / FCC ID for the radio collection device associated with a meter at a premises. MIU ID can be specified; if present, it has at least 1 and up to 13 DIGIT characters.

Examples:

- 1112223333|
- 2223334444555|

The identifier represented in MIU ID is unique within a given utility and should not be repeated within a transfer file. If the radio collection device identifier is unknown, MIU ID should be empty.

Premises City

Premises City indicates the city where the meter / service is located and contains at least 1 and up to 26 VTEXT characters.

Examples:

- Duluth |
- La Côte-de-Gaspé |
- Española |

Premises City can be the same as Account Holder City.

Premises Delivery Address

Premises Delivery Address indicates the address number and street name where the meter / service is located. Premises Delivery Address contains at least 1 and up to 64 VTEXT characters.

Examples:

- 3100 Breckinridge Blvd Bldg 2100 |
- 832 Avenue Sevigny |
- "1234 - A NW Main St S Apt 1201 |

Premises Delivery Address cannot contain city, state / province, or zip / postal code. The address conforms with USPS or Canada Post guidelines for Delivery Address Line or Civic Address line, respectively, which can include other address information such as pre-direction, unit, or post-direction. Premises Delivery Address can be the same as Account Holder Delivery Address.

Premises Email

Premises Email indicates an email address associated with the customer at the address where the meter / service is located. Premises Email can be specified and contain up to 50 EMAIL characters.

Examples:

- marketing@neptunetg.com|
- sales@neptunetg.com|

Premises Email can be the same as Account Holder Email.

Premises Phone

Premises Phone indicates the phone number associated with the customer at the address where the meter / service is located. Premises Phone can be specified and contain up to 10 DIGIT characters.

Examples:

- 3342836555|
- 9058584211|

Premises Phone data is numeric and excludes dashes, spaces, plus signs or parentheses. Premises Phone can be the same as Account Holder Phone.

Premises State

Premises State indicates the state or province where the meter / service is located and is two ALPHA characters.

Examples:

- GA |
- ON |

Premises State is expressed as a standardized two-letter abbreviation and is capitalized. Premises State can be the same as Account Holder State.

Premises Zip

Premises Zip indicates the zip or postal code where the meter / service is located. Premises Zip contains at least 5 and up to 10 characters and is formatted as indicated below.

Examples:

- 30096|
- 30096-4985 |
- L5N 5M9 |

U.S. zip codes can contain five DIGIT characters, or five DIGIT characters followed by a dash and an additional four DIGIT characters. U.S. zip codes cannot include spaces. Canadian postal codes have seven total characters and must be in ALPHA DIGIT ALPHA SP DIGIT ALPHA DIGIT format. The ALPHA characters are capitalized. Premises Zip can be the same as Account Holder Zip.

Previous Read

Previous Read displays the reading recorded by the CIS for the previous billing period. Previous Read can be specified; if present, it contains at least 1 and up to 10 DIGIT characters for a normal, numeric reading.

Examples:

- 17294|
- 0000654321|

Previous Read can contain leading zeros and excludes non-numeric data. If the previous reading recorded by the CIS contained errors / non-numeric data, Previous Read should be empty.

Register ID

Register ID contains the serial number for the register associated with a meter at a premises. Register ID contains at least 1 and up to 10 ALPHANUM characters.

Examples:

- 1234867530 |
- 2011417 |

The identifier represented in Register ID is unique within a given utility and should not be repeated within a transfer file.

Register Manufacturer

Register Manufacturer identifies the manufacturer of the register used to collect reading data. Register Manufacturer contains at least one character and each utility value must be mapped to one of the following Neptune 360 Register Manufacturer values. Add your values in the second column.

Table 5: Examples of Register Manufacturer Target Values

Target Values	Utility Values (For Utility Use)
Neptune	–
Badger	–
Elster / Amco	–
Itron	–
Hersey / Mueller	–
MasterMeter	–
Metron-Farnier	–
Sensus	–
Other	–

Register Multiplier

Register Multiplier indicates the value used for multiplication of raw reads when calculating consumption. It contains at least one and up to six DECIMAL characters with acceptable values of 0.0001, 0.001, 0.01, 0.1, 1, 10, or 100.

Examples:

- 0.0001 |
- 1 |
- 100 |

Register Multiplier cannot contain a zero or a dash. If the actual value is not known, it should be empty.

If the Register Multiplier is not provided, a default multiplier is used for consumption calculations in Neptune 360. This default multiplier is based on standard Neptune register dial configurations and the Meter Size and Register UOM values provided.

Register UOM

Register UOM identifies the unit of measure designated by the meter's register. It contains at least one character and each utility value must be mapped to one of the following Neptune 360 Register UOM values. Add your values in the second column.

Table 6: Examples of Register UOM Target Values

Target Values	Utility Values (For Utility Use)
Gallons	–
Cubic Feet	–
Cubic Meters	–
Imperial Gallons	–
Litres	–

If Register UOM is not provided, Neptune 360 assumes the utility's default setting for UOM.

Special Instruction 1

Special Instruction 1 contains account or premises-related information or instructions for use by a meter reader on a handheld device. Special Instruction 1 can be specified and contain up to 300 VTEXT characters.

Examples:

- contact homeowner before accessing property|
- "gate code = 0625; park to side of garage"|

Special Instruction 2

Special Instruction 2 contains additional account or premises-related information or instructions for use by a meter reader on a handheld device. Special Instruction 2 can be specified and contain up to 300 VTEXT characters.

Special Instruction 2 examples are the same as Special Instruction 1.

Utility Custom 1

Utility Custom 1 allows any utility-defined information to be provided. Utility Custom 1 can be specified and contain up to 40 VTEXT characters.

Examples:

- Check w/bldg mgr. before accessing meter|
- 001 /17590378164|

Utility Custom 2

Utility Custom 2 allows any utility-defined information to be provided. Utility Custom 2 can be specified and contain up to 40 VTEXT characters.

Utility Custom 2 examples are the same as Utility Custom 1.

Utility Custom 3

Utility Custom 3 allows any utility-defined information to be provided. Utility Custom 3 can be specified and contain up to 40 VTEXT characters.

Utility Custom 3 examples are the same as Utility Custom 1.

Utility Custom 4

Utility Custom 4 allows any utility-defined information to be provided. Utility Custom 4 can be specified and contain up to 40 VTEXT characters.

Utility Custom 4 examples are the same as Utility Custom 1.

Utility Custom 5

Utility Custom 5 allows any utility-defined information to be provided. Utility Custom 5 can be specified and contain up to 40 VTEXT characters.

Utility Custom 5 examples are the same as Utility Custom 1.

Utility Custom 6

Utility Custom 6 allows any utility-defined information to be provided. Utility Custom 6 can be specified and n contain up to 40 VTEXT characters.

Utility Custom 6 examples are the same as Utility Custom 1.

Utility Custom 7

Utility Custom 7 allows any utility-defined information to be provided. Utility Custom 7 can be specified and can contain up to 40 VTEXT characters.

Utility Custom 7 examples are the same as Utility Custom 1.

Utility Custom 8

Utility Custom 8 allows any utility-defined information to be provided. Utility Custom 8 can be specified and contain up to 40 VTEXT characters.

Utility Custom 8 examples are the same as Utility Custom 1.

Utility Custom 9

Utility Custom 9 allows any utility-defined information to be provided. Utility Custom 9 can be specified and contain up to 40 VTEXT characters.

Utility Custom 9 examples are the same as Utility Custom 1.

Utility Custom 10

Utility Custom 10 allows any utility-defined information to be provided. Utility Custom 10 can be specified and contain up to 40 VTEXT characters.

Utility Custom 10 examples are the same as Utility Custom 1.

Import Reference

The following table is a comprehensive listing of all potential import fields and their usage in Neptune 360 to assist in identifying pertinent information.

Table 7: Example Import Fields and Usage

Field	Required / Optional	Neptune 360 Usage
Account Number	REQUIRED	This is a key field used to search and display customer information, which includes asset and reading history.
Account Status	REQUIRED	Identifies the status of an account for display purposes and inclusion / exclusion in reporting and alerts.
Company	REQUIRED	Makes up part of the Route ID, which is used to assign routes for mobile meter reading and is displayed in reporting.
Cycle	REQUIRED	Makes up part of the Route ID, which is used to assign routes for mobile meter reading and is displayed in reporting.
Decimals	REQUIRED	Determines the number of digits placed to the right of the decimal point (visually) for mobile meter reading.
Meter Number	REQUIRED	Identifies the meter serial number associated with an account / premises.
Number of Dials	REQUIRED	Specifies the number of digits to return on export for the reading.
Office	REQUIRED	Makes up part of the Route ID, which is used to assign routes for mobile meter reading, and is displayed in reporting.
Premises Key	REQUIRED	This is a unique key for a given location.
Read Sequence	REQUIRED	Determines the order that the meters are read for mobile meter reading.
Route	REQUIRED	Makes up part of the Route ID, which is used to assign routes for mobile meter reading, and is displayed in reporting.

Table 7: Example Import Fields and Usage (continued)

Field	Required / Optional	Neptune 360 Usage
Meter Type	CONDITIONAL	Used in conjunction with Read Type to designate the read method. This field is required only if using a Trimble device for mobile meter reading, or if reading ERT endpoints..
Read Type	CONDITIONAL	Used in conjunction with Meter Type to designate the read method. This field is required only if using a Trimble device for mobile meter reading, or if reading ERT endpoints..
Account Holder City	OPTIONAL	–
Account Holder Delivery Address	OPTIONAL	–
Account Holder Email	OPTIONAL	–
Account Holder Name	OPTIONAL	–
Account Holder Phone	OPTIONAL	–
Account Holder State	OPTIONAL	–
Account Holder Zip	OPTIONAL	–
Customer Name	OPTIONAL	This is a key field used to search and display customer information throughout the application and in reporting. ***Highly recommend providing this for best user experience in Neptune 360.**
High Limit	OPTIONAL	Useful for mobile meter reading and reporting.
IsSensor	OPTIONAL	Identifies a sensor device such as a pressure or leak monitor.
Low Limit	OPTIONAL	Useful for mobile meter reading and reporting.
Meter Custom 1	OPTIONAL	Used for utility-defined information related to the meter.
Meter Custom 2	OPTIONAL	Used for utility-defined information related to the meter.
Meter Install Date	OPTIONAL	Represents the actual date the meter was installed.
Meter Latitude	OPTIONAL	This is used for displaying endpoints on map views. (Limited mapping functionality if not populated.)
Meter Longitude	OPTIONAL	This is used for displaying endpoints on may views. (Limited mapping functionality if not populated.)
Meter Manufacturer	OPTIONAL	Displayed in customer account details.
Meter Size	OPTIONAL	This is a key field used to calculate consumption for display and reporting purposes. ***Highly recommend providing this for best user experience in Neptune 360.**
Meter Uninstall Date	OPTIONAL	Represents the date the meter was removed from service.
MIU ID	OPTIONAL	This is a critical field where an MIU is installed at a premises.

Table 7: Example Import Fields and Usage (continued)

Field	Required / Optional	Neptune 360 Usage
Premises City	OPTIONAL	Displayed in customer account details and can be useful for searching accounts.
Premises Delivery Address	OPTIONAL	This is a key field used to search and display customer information throughout the application and in reporting. *Highly recommend providing this for best user experience in Neptune 360 and Neptune 360 Mobile.
Premises Email	OPTIONAL	–
Premises Phone	OPTIONAL	–
Premises State	OPTIONAL	Displayed in customer account details.
Premises Zip	OPTIONAL	Displayed in customer account details and can be useful for searching accounts.
Previous Read	OPTIONAL	Useful for mobile meter reading.
Register ID	OPTIONAL	–
Register Manufacturer	OPTIONAL	Displayed in customer account details.
Register Multiplier	OPTIONAL	This is a key field used to calculate consumption for display and reporting purposes. *Highly recommend providing this for best user experience in Neptune 360 especially in the following circumstances: • Meter Size and / or Register UOM cannot be provided. • Non-Neptune registers. • Neptune registers with special dial configurations.
Register UOM	OPTIONAL	This is a key field used to calculate consumption for display and reporting purposes. *Highly recommend providing this for best user experience in Neptune 360.
Special Instruction 1	OPTIONAL	Useful for mobile meter reading.
Special Instruction 2	OPTIONAL	Useful for mobile meter reading.
Utility Custom 1	OPTIONAL	Utility pass through.
Utility Custom 2	OPTIONAL	Utility pass through.
Utility Custom 3	OPTIONAL	Utility pass through.
Utility Custom 4	OPTIONAL	Utility pass through.
Utility Custom 5	OPTIONAL	Utility pass through.
Utility Custom 6	OPTIONAL	Utility pass through.

Table 7: Example Import Fields and Usage (continued)

Field	Required / Optional	Neptune 360 Usage
Utility Custom 7	OPTIONAL	Utility pass through.
Utility Custom 8	OPTIONAL	Utility pass through.
Utility Custom 9	OPTIONAL	Utility pass through.
Utility Custom 10	OPTIONAL	Utility pass through.

Chapter 3: Export File

The Neptune® 360™ File Mapper export file contains records and field data that communicate premises and billing-related data from Neptune 360 back to the CIS. Many field values in an export file are sourced within Neptune 360, from a handheld device, or from a register or sensor device. Some field values in the export file are passed through from Import Record data sourced by the CIS.

The export file consists of two components: the Export Header Row and the Export Records.

Export Header Row

The Export Header Row contains the column names and represents all the Neptune 360 File Mapper export fields included in the Export Record. There can be only one Export Header Row in an export file, and it is the first row / record in the file.

The Export Header Row is 1,507 total characters including 1,505 ALPHANUM and DELIM characters followed by a terminating CRLF. The Export Header Row consists of the following literal text:

```
Company|Office|Cycle|Route|Account Number|Premises Key|Meter
Number_A|MIU ID_A|Register ID_A| Reading_A|Raw Reading_A|Read
DateTime_A|35 Day No Flow flag_A|Reverse Flow flag_A|35 Day leak
flag_A| Current Leak flag_A|Reader ID_A|Order Status_A|Skip
Code_A|Comment Code 1_A|Comment Code 2_A|Note_A| Re-entry Count_
A|Meter Number_B|MIU ID_B|Register ID_B|Reading_B|Raw Reading_
B|Read DateTime_B| 35 Day No Flow flag_B|Reverse Flow flag_B|35
Day leak flag_B|Current Leak flag_B|Reader ID_B| Order Status_
B|Skip Code_B|Comment Code 1_B|Comment Code 2_B|Note_B|Re-entry
Count_B|Meter Number_C| MIU ID_C|Register ID_C|Reading_C|Raw
Reading_C|Read DateTime_C|35 Day No Flow flag_C| Reverse Flow
flag_C|35 Day leak flag_C|Current Leak flag_C|Reader ID_C|Order
Status_C|Skip Code_C| Comment Code 1_C|Comment Code 2_C|Note_
C|Re-entry Count_C|Meter Number_D|MIU ID_D|Register ID_D|
Reading_D|Raw Reading_D|Read DateTime_D|35 Day No Flow flag_
D|Reverse Flow flag_D|35 Day leak flag_D| Current Leak flag_
D|Reader ID_D|Order Status_D|Skip Code_D|Comment Code 1_
D|Comment Code 2_D|Note_D| Re-entry Count_D|Meter Number_E|MIU
ID_E|Register ID_E|Reading_E|Raw Reading_E|Read DateTime_E| 35
Day No Flow flag_E|Reverse Flow flag_E|35 Day leak flag_
E|Current Leak flag_E|Reader ID_E| Order Status_E|Skip Code_
E|Comment Code 1_E|Comment Code 2_E|Note_E|Re-entry Count_
E|Utility Custom 1| Utility Custom 2|Utility Custom 3|Utility
Custom 4|Utility Custom 5|Utility Custom 6|Utility Custom 7|
Utility Custom 8|Utility Custom 9|Utility Custom 10
```

Important! The line breaks in the above text presentation are for clarity in reading this document. There is no white space between a DELIM character and the subsequent text.

Export Record

The Export Record transfers meter reading data from Neptune 360 back to the CIS. Each Export Record contains 101 fields / columns which correlate with the columns named in the Export Header Row record. The Export Record is logically organized into categories, although there is no visual or other separator within the record to demarcate these sections.

This section identifies and describes each of the fields in the Export Record and appears in the order presented in the Export Header Row. An export file may have any quantity of Export Records; however, there is at least one Export Record per file. The DELIM character separates each data field within the Export Record and each Export Record in the file ends with CRLF.

Some field values in the Export Record reflect values provided to Neptune 360 in an import file. Reading-related field values are sourced by Neptune 360, a handheld device, or a register or other metrology device. Each Export Record field includes:

- Field name.
- Field description.
- Example data.

Requirements for the field's use (including any expected and or allowed values) are specified along with the character type and minimum and maximum allowed character counts.

ROUTE MANAGEMENT

The CIS sources all Route Management fields (Company, Office, Cycle, and Route), which pass through from the Import Record to the Export Record unchanged.

Company

Company has the same value in the Export Record as was in the Import Record and contains up to four ALPHANUM characters.

Company examples:

- NEPT|
- nep|
- 00A1|

Office

Office has the same value in the Export Record as in the Import Record and contains up to four ALPHANUM characters.

Office examples:

- Off1|
- 1234|
- Of 1|

Cycle

Cycle has the same value in the Export Record as in the Import Record and contains up to four ALPHANUM characters.

Cycle examples:

- Mwk1|
- 0 02|
- A|

Route

Route has the same value in the Export Record as in the Import Record and contains up to 10 ALPHANUM characters.

Route examples:

- DuluthGA01|
- DULUTH1|
- 22|

ACCOUNT and PREMISES INFORMATION

These few Account and Premises Information fields are present in the Export Record to facilitate matching with the corresponding Import Record the CIS produces. The CIS sources all Account and Premises Information fields, which pass through from the Import Record to the Export Record unchanged.

Account Number

Account Number has the same value in the Export Record as in the Import Record and contains at least 1 and up to 20 ALPHANUM characters.

Account Number examples:

- DLTH0987654321|
- abcde12345fghjk67890|
- 123-0000293847|

Premises Key

Premises Key has the same value in the Export Record as in the Import Record and contains at least 1 and up to 20 ALPHANUM characters.

Premises Key examples:

- 001-1234567890|
- A270C75BB6398AE02D14|
- "102 /9876543"|

METER READING INFORMATION

The Meter Reading Information category of fields provides meter reading-related data from Neptune 360 back to the CIS for the purposes of billing. The Export Record includes five independent Meter Reading structures which correlate with the meter configurations in the Import Record that relate to the same Premises Key and Account Number. Field descriptions, requirements for use, and examples are given for Meter Reading_A. Those same specifications apply to each of Meter Reading_B, Meter Reading _C, Meter Reading _D, and Meter Reading _E.

An Export Record only includes Meter Reading data for the same meter configurations specified in the corresponding Import Record. For Meter configurations not specified in an Import Record, all corresponding Meter Reading fields are empty in the Export Record. For example, if only Meter_A and Meter_B were specified in an Import Record, only Meter Reading_A and Meter Reading_B contain data in the Export Record. The CIS sources some Meter Reading fields, which pass through from the Import Record to the Export Record unchanged.

METER READING_A

Meter Number_A

Meter Number_A has the same value in the Export Record as in the Import Record and contains up to 20 ALPHANUM characters.

Meter Number_A examples:

- W1AH8201|
- 09876543211234567890|

MIU ID_A

MIU ID_A has the same value in the Export Record as in the Import Record and contains up to 13 DIGIT characters.

MIU ID_A examples:

- 1112223333|
- 2223334444555|

Register ID_A

Register ID_A has the same value in the Export Record as in the Import Record and contains up to 10 DIGIT characters.

Register ID_A examples:

- 1234867530|
- 2011417|

Reading_A

Represents the meter reading for the order formatted using Number of Dials. Reading should be specified; if present, it contains at least one and up to ten *DIGIT* characters.

Reading_A examples:

- 0000003108| (Raw Reading_A = 31082302, Number of Dials = 4)
- 0000074326| (Raw Reading_A = 074326, Number of Dials = 6)
- ::::::::| (read error)

Reading can represent either a reading manually keyed into a handheld device or a reading collected via radio or probe. If Order Status has a value of "SK" or "IN," the corresponding Reading is not specified. Reading may contain leading zeros and may contain up to eight ERRREAD characters.

Raw Reading_A

Represents all transmittable digits for a radio or probe-collected meter reading on the order. Raw Reading should be specified. If present, it contains at least six and up to eight DIGIT characters for a normal, numeric register reading.

Raw Reading_A examples:

- 31082302| (radio read)
- 074326| (probe read)
- ::::::::|(read error)

If Order Status has a value of "SK" or "IN," or if the reading for an order was manually keyed, then the corresponding Raw Reading is not specified. Raw Reading may contain leading zeros and may contain up to eight ERRREAD characters.

Read DateTime_A

Represents the date and time the Order Status was recorded. Read DateTime contains 20 ALPHANUM characters and is expressed in YYYYMMDD 24HHMMSS format.

Read DateTime_A examples:

- **20190801 183721|**
- **20181214 011258|**

35 Day No Flow flag_A

Code representing a range of consecutive days out of the previous 35 days the system recorded no consumption (no flow) for a register. A 35 Day No Flow flag may be specified. If present, it is one DIGIT character and one of the following values:

- 0 = 0 days (flow every day).
- 1 = 1 to 2 days.
- 2 = 3 to 7 days.
- 3 = 8 to 14 days.
- 4 = 15 to 21 days.
- 5 = 22 to 34 days.
- 6 = 35 days (no flow detected).

Examples of 35 Day No Flow flag_A :

- 0|
- 6|

Only a register operating in E-CODER PLUS mode reports a 35 Day No Flow flag. For all other register types (or if the reading for an E-CODER register has been manually keyed), 35 Day No Flow flag is empty. If there are multiple, separate periods of consecutive days with no consumption, the 35 Day No Flow flag returns the code that correlates with the longest period. If a value of 7 is received for 35 Day No Flow flag, you can ignore it.

Reverse Flow flag_A

Code indicating the level of any reverse flow event measured by a register within the past 24-hours. Reverse Flow flag may be specified. If present, it is one DIGIT character and one of the following values:

- 0 = No reverse flow indicated.
- 1 = minor reverse flow.
- 2 = major reverse flow.

Reverse Flow flag_A examples (all valid values):

- 0|
- 1|
- 2|

Only a register operating in E-CODER PLUS mode reports Reverse Flow flag. For all other register types, or if the reading for an E-CODER register has been manually keyed, Reverse Flow flag is empty. The water volumes that trigger values of 1 or 2 for Reverse Flow flag vary based on meter size and register unit of measure. If a value of 3 is received for Reverse Flow flag, you can ignore it.

35 Day leak flag_A

Code representing a range of the total number of days out of the previous 35 there was intermittent or continuous consumption reported by a register. The 35 Day leak flag may be specified. If present, it is one DIGIT character and one of the following values:

- 0 = 0 days.
- 1 = 1 to 2 days.
- 2 = 3 to 7 days.
- 3 = 8 to 14 days .
- 4 = 15 to 21 days.
- 5 = 22 to 34 days.
- 6 = 35 days (intermittent or continuous consumption every day).

35 Day leak flag _A examples:

- 5|
- 2|

Only a register operating in E-CODER PLUS mode reports 35 Day leak flag. For all other register types, or if the reading for an E-CODER register has been manually keyed, 35 Day leak flag is empty. If a value of 7 is received for 35 Day leak flag, you can ignore it.

Current Leak flag_A

Code categorizing the quantity of 15-minute periods of consumption measured by a register within the past 24-hours. Current Leak flag MAY be specified. If present, it is one DIGIT character and one of the following values:

- 0 = normal (0 to 49 15-minute periods within 24 hours).
- 1 = intermittent consumption (50 to 95 15-minute periods within 24 hours).
- 2 = continuous consumption (All 96 15-minute periods within 24 hours).

Current Leak flag _A examples (all valid values):

- 0|
- 1|
- 2|

Only a register operating in E-CODER PLUS mode reports Current Leak flag. For all other register types, or if the reading for an E-CODER register has been manually keyed, Current Leak flag is empty. A value of 1 or 2 for Current Leak flag may indicate a leak condition at the premises associated with the register. If a value of 3 is received for Current Leak flag, you can ignore it.

Reader ID_A

Identifies the person or handheld device that obtained the reading for the order. If populated, Reader ID is at least 1 and up to 20 ALPHANUM characters.

Reader ID_A examples:

- bmadison@neptune360.com|
- HANDHELD12|

Reader ID should be a Neptune 360 username (email address) and may be a handheld device identifier depending on the device used. Note that the data in the Reader ID field may appear truncated.

Order Status_A

Indicates the status of the order when it was recorded. Order Status is up to 2 ALPHA characters and one of the following values:

- CO (Complete) = valid reading obtained.
- IN (Incomplete) = reading not yet obtained.
- SK (Skipped) = reading not obtained and skip code applied.

Order Status_A examples (all valid values):

- CO|
- IN|
- SK|

Skip Code_A

Code entered on a handheld device indicating a specific reason why a reading for an order was not obtained. Skip Code may be specified. If present it is at least one and up to four ALPHANUM characters.

Skip Code 1_A examples:

- SK01|
- s3|

Skip Code is specified if Order Status has a value of "SK." All Skip Code values and related descriptions are configured within Neptune 360.

Comment Code 1_A

Code entered on a handheld device representing a meter situation or condition at the premises which could affect obtaining a reading on future orders. Comment Code 1 may be specified and can contain up to four ALPHANUM characters.

Comment Code 1_A examples:

- INSC|
- c7|

Comment Code 1 may be associated to an order via a handheld device. All Comment Code values and related descriptions are configured within Neptune 360.

Comment Code 2_A

Code representing an additional meter situation or condition at the premises. Comment Code 2 may be specified and can contain up to four ALPHANUM characters.

Comment Code 2_A examples same as Comment Code 1_A.

Comment Code 2 may be associated to an order via a handheld device. All Comment Code values and related descriptions are configured within Neptune 360.

Note_A

Represents freeform text notes input on a handheld device regarding a premises or meter at a premises.

Note may be specified and can contain up to 128 ALPHANUM characters.

Note_A examples:

- mulch and dirt covering pit cover|
- major renovation@residence; owner says water shut off inside|

Re-entry Count_A

Indicates the number of different manually-keyed readings attempted by a user for the order. Re-entry Count may be specified. If present, it is one DIGIT character.

Re-entry Count_A examples:

- 1|
- 6|

METER READING_B

Meter Number_B

Meter Number_B has the same value in the Export Record as in the Import Record and contains up to 20 ALPHANUM characters.

Meter Number_B examples are the same as Meter Number_A.

MIU ID_B

MIU ID_B has the same value in the Export Record as in the Import Record and contains up to 13 DIGIT characters.

MIU ID_B examples are the same as MIU ID_A.

Register ID_B

Register ID_A has the same value in the Export Record as in the Import Record and contains up to 10 DIGIT characters.

Register ID_B examples are the same as Register ID_A.

Reading_B

Same meaning, requirements, and examples as Reading_A.

Raw Reading_B

Same meaning, requirements, and examples as Raw Reading_A.

Read DateTime_B

Same meaning, requirements, and examples as Read DateTime_A.

35 Day No Flow flag_B

Same meaning, requirements, and examples as 35 Day No Flow flag_A.

Reverse Flow flag_B

Same meaning, requirements, and examples as Reverse Flow flag_A.

35 Day Leak flag_B

Same meaning, requirements, and examples as 35 Day leak flag_A.

Current leak flag_B

Same meaning, requirements, and examples as Current Leak flag_A.

Reader ID_B

Same meaning, requirements, and examples as Reader ID_A.

Order Status_B

Same meaning, requirements, and examples as Order Status_A.

Skip Code_B

Same meaning, requirements, and examples as Skip Code_A.

Comment Code 1_B

Same meaning, requirements, and examples as Comment Code 1_A,

Comment Code 2_B

Same meaning, requirements, and examples as Comment Code 2_A.

Note_B

Same meaning, requirements, and examples as Note_A.

Re-entry Count_B

Same meaning, requirements, and examples as Re-entry Count_A.

METER READING_C

Meter Number_C

Meter Number_C has the same value in the Export Record as in the Import Record and contains up to 20 ALPHANUM characters.

Meter Number_C examples are the same as Meter Number_A.

MIU ID_C

MIU ID_C has the same value in the Export Record as in the Import Record and contains up to 13 DIGIT characters.

MIU ID_C examples are the same as MIU ID_A.

Register ID_C

Register ID_A has the same value in the Export Record as in the Import Record and contains up to 10 DIGIT characters.

Register ID_C examples are the same as Register ID_A.

Reading_C

Same meaning, requirements, and examples as Reading_A.

Raw Reading_C

Same meaning, requirements, and examples as Raw Reading_A.

Read DateTime_C

Same meaning, requirements, and examples as Read DateTime_A.

35 Day No Flow flag_C

Same meaning, requirements, and examples as 35 Day No Flow flag_A.

Reverse Flow flag_C

Same meaning, requirements, and examples as Reverse Flow flag_A.

35 Day leak flag_C

Same meaning, requirements, and examples as 35 Day leak flag_A.

Current Leak flag_C

Same meaning, requirements, and examples as Current Leak flag_A.

Reader ID_C

Same meaning, requirements, and examples as Reader ID_A.

Order Status_C

Same meaning, requirements, and examples as Order Status_A.

Skip Code_C

Same meaning, requirements, and examples as Skip Code_A.

Comment Code 1_C

Same meaning, requirements, and examples as Comment Code 1_A.

Comment Code 2_C

Same meaning, requirements, and examples as Comment Code 2_A.

Note_C

Same meaning, requirements, and examples as Note_A.

Re-entry Count_C

Same meaning, requirements, and examples as Re-entry Count_A.

METER READING_D

Meter Number_D

Meter Number_D has the same value in the Export Record as in the Import Record and contains up to 20 ALPHANUM characters.

Meter Number_D examples are the same as Meter Number_A.

MIU ID_D

MIU ID_D has the same value in the Export Record as in the Import Record and contains up to 13 DIGIT characters.

MIU ID_D examples are the same as MIU ID_A.

Register ID_D

Register ID_A has the same value in the Export Record as in the Import Record and contains up to 10 DIGIT characters.

Register ID_D examples are the same as Register ID_A.

Reading_D

Same meaning, requirements, and examples as Reading_A.

Raw Reading_D

Same meaning, requirements, and examples as Raw Reading_A.

Read DateTime_D

Same meaning, requirements, and examples as Read DateTime_A.

35 Day No Flow flag_D

Same meaning, requirements, and examples as 35 Day No Flow flag_A.

Reverse Flow flag_D

Same meaning, requirements, and examples as Reverse Flow flag_A.

35 Day leak flag_D

Same meaning, requirements, and examples as 35 Day leak flag_A.

Current Leak flag_D

Same meaning, requirements, and examples as Current Leak flag_A.

Reader ID_D

Same meaning, requirements, and examples as Reader ID_A.

Order Status_D

Same meaning, requirements, and examples as Order Status_A.

Skip Code_D

Same meaning, requirements, and examples as Skip Code_A.

Comment Code 1_D

Same meaning, requirements, and examples as Comment Code 1_A.

Comment Code 2_D

Same meaning, requirements, and examples as Comment Code 2_A.

Note_D

Same meaning, requirements, and examples as Note_A.

Re-entry Count_D

Same meaning, requirements, and examples as Re-entry Count_A.

METER READING_E

Meter Number_E

Meter Number_E has the same value in the Export Record as in the Import Record and contains up to 20 ALPHANUM characters.

Meter Number_E examples are the same as Meter Number_A.

MIU ID_E

MIU ID_E has the same value in the Export Record as in the Import Record and contains up to 13 DIGIT characters.

MIU ID_E examples are the same as MIU ID_A.

Register ID_E

Register ID_A has the same value in the Export Record as in the Import Record and contains up to 10 DIGIT characters.

Register ID_E examples are the same as Register ID_A.

Reading_E

Same meaning, requirements, and examples as Reading_A.

Raw Reading_E

Same meaning, requirements, and examples as Raw Reading_A.

Read DateTime_E

Same meaning, requirements, and examples as Read DateTime_A.

35 Day No Flow flag_E

Same meaning, requirements, and examples as 35 Day No Flow flag_A.

Reverse Flow flag_E

Same meaning, requirements, and examples as Reverse Flow flag_A.

35 Day leak flag_E

Same meaning, requirements, and examples as 35 Day leak flag_A.

Current Leak flag_E

Same meaning, requirements, and examples as Current Leak flag_A.

Reader ID_E

Same meaning, requirements, and examples as Reader ID_A.

Order Status_E

Same meaning, requirements, and examples as Order Status_A.

Skip Code_E

Same meaning, requirements, and examples as Skip Code_A.

Comment Code 1_E

Same meaning, requirements, and examples as Comment Code 1_A.

Comment Code 2_E

Same meaning, requirements, and examples as Comment Code 2_A.

Note_E

Same meaning, requirements, and examples as Note_A.

Re-entry Count_E

Same meaning, requirements, and examples as Re-entry Count_A.

UTILITY PASS THROUGH

The CIS sources all Utility Pass Through fields, which pass through from the Import Record to the Export Record unchanged for a given Premises Key.

Utility Custom 1

If specified in the Import Record, Utility Custom 1 has the same value in the Export Record and may contain up to 40 VTEXT characters.

Utility Custom 1 examples:

- Check w/bldg mgr. before accessing meter|
- 001 /17590378164|

Utility Custom 2

If specified in the Import Record, Utility Custom 2 has the same value in the Export Record and may contain up to 40 VTEXT characters.

Utility Custom 2 examples are the same as Utility Custom 1.

Utility Custom 3

If specified in the Import Record, Utility Custom 3 has the same value in the Export Record and may contain up to 40 VTEXT characters.

Utility Custom 3 examples are the same as Utility Custom 1.

Utility Custom 4

If specified in the Import Record, Utility Custom 4 has the same value in the Export Record and may contain up to 40 VTEXT characters.

Utility Custom 2 examples are the same as Utility Custom 1.

Utility Custom 5

If specified in the Import Record, Utility Custom 5 has the same value in the Export Record and may contain up to 40 VTEXT characters.

Utility Custom 5 examples are the same as Utility Custom 1.

Utility Custom 6

If specified in the Import Record, Utility Custom 6 has the same value in the Export Record and may contain up to 40 VTEXT characters.

Utility Custom 6 examples are the same as Utility Custom 1.

Utility Custom 7

If specified in the Import Record, Utility Custom 7 has the same value in the Export Record and may contain up to 40 VTEXT characters.

Utility Custom 7 examples are the same as Utility Custom 1.

Utility Custom 8

If specified in the Import Record, Utility Custom 8 has the same value in the Export Record and may contain up to 40 VTEXT characters.

Utility Custom 8 examples are the same as Utility Custom 1.

Utility Custom 9

If specified in the Import Record, Utility Custom 9 has the same value in the Export Record and may contain up to 40 VTEXT characters.

Utility Custom 9 examples are the same as Utility Custom 1.

Utility Custom 10

If specified in the Import Record, Utility Custom 10 has the same value in the Export Record and may contain up to 40 VTEXT characters.

Utility Custom 10 examples are the same as Utility Custom 1.

Export Record Terminator

Each Export Record in an export file is terminated with a CRLF.

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